

(12) **United States Patent**
Furuta et al.

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(54) **METHOD OF PRODUCING ROLLING CODE AND KEYLESS ENTRY APPARATUS USING THE SAME**

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(*) Notice: This patent issued on a continued prosecution application filed under 37 CFR 1.53(d), and is subject to the twenty year patent term provisions of 35 U.S.C. 154(a)(2).

Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

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(51) **Int. Cl.⁷** **B60R 25/10; G06F 7/04**

(52) **U.S. Cl.** **340/426; 340/425.5; 340/825.31; 341/176; 341/174**

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(57) **ABSTRACT**

A rolling code producing method is provided which may be employed in a keyless entry system for automotive vehicles designed to compare a rolling code derived in a receiver installed in the vehicle and a rolling code derived in a portable transmitter to allow authorized access to the vehicle if both the rolling codes match. The rolling code producing method includes producing different rolling codes, in sequence, using an initial code variable according to a given algorithm and changing the initial code variable in response to insertion of an initial code variable memory card carried by a vehicle operator into the receiver.

13 Claims, 8 Drawing Sheets

